THE INSTITUTE OF PHYSICS

47 BELGRAVE SQUARE, LONDON, S.W.1

BULLETIN

No. 27 *Information in this circular is not intended for general publication: your copy should not therefore be passed to a library.* MARCH 1952

NOTICES TO MEMBERS

Benevolent Fund

The Honorary Treasurer gratefully acknowledges a magnificent gift of £1,000 to the capital of the Institute's Benevolent Fund from a friend of the Institute who wishes to remain anonymous. This gift is a gratifying recognition of the extremely valuable work done by the Fund, which exists solely for the benefit of members or their dependants who, through misfortune, fall in need of help.

An appeal was sent at the beginning of the year with the normal subscription reminder to those members who pay Institute subscriptions by cheque, asking those willing to make an annual contribution of £1 or more to the Benevolent Fund to complete a seven-year-covenant form. This would enable the Institute to recover for the Fund the income tax paid by the member on his donation. Such an arrangement will allow the Fund to receive from the tax authorities up to eighteen shillings for each pound paid by the subscriber. The Honorary Treasurer wishes to appeal to members who pay subscriptions by Bankers' Order and who have therefore not received his earlier notice, to complete such a seven-year-covenant form. The Secretary will be glad to supply details or to answer questions.

Furnishing Fund

The Furnishing Fund which was set up in 1947 and to which members were invited to contribute in order to provide for the furnishing of the Institute's House has received a most generous donation from Mr. R. S. Whipple, a former Vice-President, who has made several gifts to the Institute in the past. Mr. Whipple has given £500 to the Fund, specifically to defray the cost of carpeting part of the House. The Board gratefully acknowledges this latest instance of Mr. Whipple's help and great interest in the Institute.

Members are reminded that the House still requires furniture and that the Fund is still open. Gifts, in money or in kind, however small, will be gratefully acknowledged.

Summer Meetings

Preliminary details are now available of four Institute Summer Meetings. Full particulars will be circulated to the members of the Branch or Group concerned and will be sent on request to any other member who is interested.

The London and Home Counties Branch Summer Meeting will be held on July 5th at the Road Research Station at West Drayton and Harmondsworth, where work is being undertaken on a wide range of interesting scientific problems. Transport facilities will be provided to enable all those attending to visit both branches of the establishment.

The Education Group Summer Meeting will be held on July 5th at Christ's Hospital, Horsham. The school is exceptionally well provided with facilities for the teaching of science; it has fourteen science laboratories.

The Electronics Group Summer Meeting is being arranged at the Clarendon Laboratory, Oxford, on July 11th and 12th. Hotel accommodation will be available for members and their guests.

The Industrial Radiology Group Summer Meeting will be held in Sheffield on July 3rd and 4th. Accommodation is available at Crewe Hall, the University Hostel.

It is hoped that members' ladies and guests will attend these functions. Branch and Group Committees endeavour to arrange their Summer Meetings to be of scientific and of general interest in order to give an opportunity for members and their guests to meet together socially.

Education Group Conference

Details of the Education Group Conference are now available and have been circulated to Group members. The Conference is to be held in the Institute's House on April 17th, 18th and 19th; because of the limited accommodation attendance will be by ticket only. Any members who are interested, whether members of the Group or not, can obtain particulars from the Deputy Secretary.

The theme of the Conference is "School and University Examinations in Physics." The speakers are Professor W. E. Curtis, Mr. J. L. Brereton, Dr. T. L. Ibbs, Mr. W. B. Chivers, Mr. E. W. Tapper, Dr. J. G. Wilson, Dr. W. H. Taylor and Dr. A. J. Woodall.

Physics as a Career

The price of the small book *Physics as a Career*, by the Deputy Secretary, is 6s. (postage and packing 6d. extra) to non-members, but members of all grades may purchase one copy for their personal use at the special rate of 3s. 6d., including postage. Full details are given in a separate leaflet which is being circulated to members with this issue of the Bulletin. Despite the present high costs of printing, the price of the book has been kept low in order to encourage the widest possible sale.

Gamma-ray Sources for Radiography

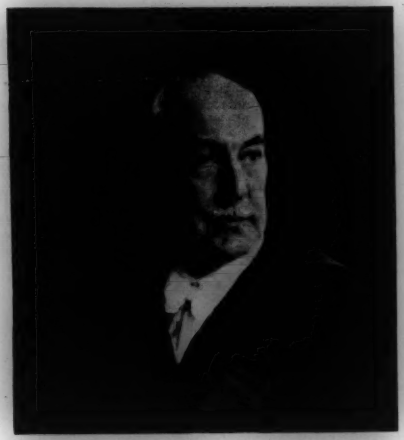
New sources of gamma-rays now available in this country have not only extended the field in which radiography can be usefully applied but have also permitted considerable improvements to existing techniques. Indeed, a wide range of radiography is now possible without X-ray equipment. In

order that full advantage should be taken of these new sources the Industrial Radiology group of the Institute prepared a memorandum for the convenience of its members, giving technical data about these sources and briefly describing the techniques to be used in handling and transporting them. The interest in this circular was so great that it has now been printed and copies are obtainable, price 3s. 6d., from the Secretary of the Institute.

Physical Society Exhibition

The annual exhibition of instruments arranged by the Physical Society will be held at Imperial College on April 3rd–8th (except Sunday). A limited number of tickets are available, on application to the Secretary of the Institute, to members of the Institute who are not members of the Society. Applicants should state the session (date and whether morning or afternoon) for which the ticket is required.

MEMBER OF NOTE



Sir Andrew McCance, D.Sc., Hon.LL.D., A.R.S.M., F.R.S. Sir Andrew McCance was educated in Crieff, Glasgow, and the Royal School of Mines, London. His first post, in 1910, was with Wm. Beardmore & Company Limited, initially as a metallurgist and later as Assistant Armour Manager. He left Beardmore's in 1919 to become Managing Director of a new firm, The Clyde Alloy Steel Company Limited, in which post he remained until 1930. He had obtained his D.Sc. of the University of London in 1916 at the age of 27. In 1930 Sir Andrew became a Director of David Colville & Sons Limited and, in 1944, Deputy Chairman and Joint Managing Director of Colvilles Limited.

Sir Andrew has received many honours for his outstanding contributions to the science of metallurgy. In 1940 he received the Bessemer Gold Medal, the highest award of the Iron and Steel Institute, and in 1943 was elected to Fellowship of the Royal Society. He was knighted in 1947.

A Fellow of The Institute of Physics since its foundation thirty-two years ago, Sir Andrew has served on the Board (1946–48), and he is the Chairman of the Organizing Committee for the 4th Conference on Industrial Physics which is to be held in Glasgow in June 1952. He has been a Member of Council of the Iron and Steel Institute and the Institute of Welding, and is a Past President of the West of Scotland Iron and Steel Institute. A Governor of the Royal Technical College, Glasgow, he has also been a member of the Scientific Advisory Council of the Department of Scientific and Industrial Research and has recently become Chairman of the Department's Mechanical Engineering Research Board.

NEW BOOKS

The Weather. By GEORGE KIMBLE, Ph.D. (London: Penguin Books Ltd.) Second edition, revised and enlarged. Pp. 256 with 16 plates. Price 3s.

No science stands in more need of authoritative popular exposition than does meteorology. Books on the natural history of weather abound, but there are none in print which show the weather forecaster as a scientist attempting to apply the scientific method to partially specified problems of unusual complexity. The forecaster's results, never "accurate," but frequently useful, receive unparalleled publicity; his methods little or none. The appearance of a "Pelican" claiming to describe " . . . the methods by which the modern forecaster reaches his conclusions" therefore raises high hopes, hopes which do not survive the reading of the first few pages.

The book is written in a colloquial style, and at times appears to be addressed to the very young. Such a style must be very carefully handled if serious imprecision is to be avoided, a fact which apparently causes the author little concern. Some quotations may support this supposition, for example the following series on various aspects of water in the atmosphere: " . . . a large proportion of the sun's rays are reflected back by the water vapour particles . . ." (p. 36), " . . . we must first have water vapour, that is invisible particles of water suspended in the atmosphere" (p. 73), " . . . a good 3 oz. of visible cloud particles floating around (the particles might even have condensed into water)" (p. 74), " . . . Indeed the water vapour particles in an ordinary cloud are so small and light that they have more difficulty falling than floating" (p. 109). Physicists in other fields will be interested in these examples: "How does the sun get its heat across those ninety odd million miles? In a word, by 'radio' " (p. 35), " . . . for it is the sun which supplies, through its electrons, the bulk of the earth's heat energy" (p. 150). The most remarkable examples are too long to quote, but it is difficult to imagine how passages such as the explanation of the general circulation on pp. 41–45, and the remarks on terrestrial consequences of the sun spot cycle (p. 148) came to be written or published.

Needless to say, there is much that is good in the book, not least the final cautionary chapter on artificial interference with weather processes. It is not possible to recommend for reading by the uninstructed a text containing statements such as those quoted above, but meteorologists will find in it much to interest and amuse them. G. D. ROBINSON

Fellowship of the Air, 1901–1951 (Jubilee Book of the Royal Aero Club). By B. P. HURREN. (London: Iliffe & Sons Ltd.) Pp. 234 + 88 illustrations. Price 30s.

From the time of the historic balloon ascent of 1783 men were to be lured by the attraction and challenge of this new freedom of the air. It was after more than a century of ballooning, however, that an apparently casual suggestion led to the formation of the Aero Club of the United Kingdom. In the event, the date of formation proved most timely for it was only four years later, in 1905, that the Wright brothers' success gave such impetus to aviation as we now understand the term. Early developments rested on the faithful labours of the enthusiasts; but healthy growth demanded the widest interchange of ideas and expensive private ventures needed backers. The Club provided a ready-made "Fellowship of the Air" which was to serve as a focus for the activities of these new adventurers.

In this book we have a faithful record of the activities and vicissitudes of the Club and ample demonstration of the leading role it has played in fostering private flying in Great Britain. Judicious selection of material has brought fifty crowded years of aviation within the scope of a well-illustrated book of moderate size.

The very essence of this record is to be found in the dynamic characters of the long line of illustrious participants. Yet it is in this respect that the book fails to impress—perhaps because attention cannot be focused too narrowly on any one luminary in such a constellation. The reader who is unable to supply his own spice of warm human association and personal recollection may find the meal adequate but unexciting.

D. E. ADAMS

APPOINTMENTS VACANT

The inclusion of particulars of a vacancy must not be taken to imply that the Institute necessarily approves of the terms offered or that might be offered. Candidates should satisfy themselves that these are satisfactory, and they may always refer to the Institute for advice.

Radio Engineer required for the development of switches and similar components for high frequency and tropical use. Good prospects for man having right kind of training and experience and house available if married. Salary according to experience. Address applications to General Manager, **Associated British Metal Products Limited,** Abercynon, Glamorgan.

Physicist required for optical research and development of high class optical instruments, preferably with training in experimental physics and some knowledge of high accuracy requirements and methods in light engineering. Some knowledge of optical design and the application of electronics to optical instruments would be an advantage. Preference will be given to honours graduate. Salary according to age and qualifications. Please apply in writing, stating age and qualifications, to the Personnel Officer, **Hilger and Watts Ltd.,** Hilger Division, 98 St. Pancras Way, London, N.W.1.

Imperial Chemical Industries Limited, Nobel Division, requires **physicists** for election to their Technical Staff to work on applied research connected with manufacture and industrial application of silicones. Applicants should be University honours graduates with good training in electricity in their degree work. Research experience on electrical problems would be an advantage. Salary according to age, qualifications and experience. Applications should be made to the Staff Manager, Nobel House, 25 Bothwell Street, Glasgow, C.2.

Electrical Engineers and **Physicists** are invited by the **Ministry of Supply** to apply for the following posts in the Scientific Officer Class at the Instrument and Photographic Department of the Royal Aircraft Establishment, Farnborough, Hants.

(1) For the assessment of analogue computor and servo-mechanism techniques and the development of precision equipment in that field for use in aircraft. Ref. No. A347/51A.

(2) For the analysis of the complex dynamical problems arising in automatic control of aircraft and for research upon methods of control. An interest in aerodynamics, particularly stability and control, is desirable and candidates must be willing to fly as an observer. Some experience in research or development of light electrical or electronic equipment, or servo systems, and a knowledge of electronics would be advantageous. Ref. No. A348/51A.

(3) For research and development work in connection with gyroscopic and allied instruments. Some experience in experimental and design work is desirable and a practical knowledge of electronics would be an advantage. The work offers considerable scope for inventive ability. Ref. No. A349/51A.

(4) For the development of aircraft cameras, involving image movement compensation, exposure frequency control and syroscopic stabilization. Some experience of experimental or design work in the photographic field is desirable. Ref. No. A350/51A.

Candidates should have a 1st or 2nd class honours degree or equivalent qualification in physics or electrical engineering. Applicants for the senior grade must be at least 26 years of age and should have at least 3 years' post-graduate research experience. Salaries will be assessed according to age, qualifications and experience within the inclusive ranges. Senior Scientific Officer—£781–£980. Scientific Officer—£417–£675. Rates for women somewhat lower. The posts are unestablished but carry benefits under F.S.S.U. Application forms obtainable from Ministry of Labour and National Service, Technical and Scientific (K), Almack House, 26 King Street, London, S.W.1, quoting the appropriate reference number. Closing date 29 April, 1952.

Admiralty and **Ministry of Supply: Industrial Chemists** and **Chemical Engineers.** The Civil Service Commissioners invite applications for the following permanent and pensionable posts: Admiralty—Five posts in the Armament Supply Department Chemists Pool in the Propellant and Cordite Factories at Caerwent (near Newport) and Holton Heath (near Bournemouth), and one post of Chemist in the Victualling Department at Risley (near Warrington). Ministry of Supply—25 posts in the Royal Ordnance Factories at Bridgwater, Pembrey, Bishopton, Irvine, Chorley, Swynnerton, Glascoed; in the Atomic Energy Establishments at Capenhurst and Risley; and in Headquarters Departments of the R.O.F.s, Inspectorates and Production Directorates in the London area. Women are not eligible for posts in the Armament Supply Department of the Admiralty.

Candidates must be at least 25 and under 35 years of age on 1 January, 1952, except that the minimum age for the Ministry of Supply is 23 years, with extension for regular service in H.M. Forces, and up to two years for permanent civil servants. They must have (*a*) a University honours degree in metallurgy, engineering, chemistry, physics or chemical engineering, or (*b*) Associateship of The Royal Institute of Chemistry, The Institution of Metallurgists, or The Institute of Physics, or (*c*) Corporate Membership of The Institution of Chemical Engineers; but candidates for the post in the Victualling Department of the Admiralty must possess a 1st or 2nd class honours degree of a British University with chemistry as principal subject or A.R.I.C. and have had at least two years' post-graduate experience in one of the three main groups of stores, viz: Provisions, Clothing, Mess Gear. Successful candidates admitted under (*a*) or (*b*) above must complete at least three years approved experience in a factory or industrial laboratory before confirmation of appointment.

Exceptionally, candidates able to provide alternative evidence of very high professional attainments may be accepted.

Salary according to age. London rates: at 23, £375; at 25, £575; at 34, £810; then by annual increments of £30 to £900, plus a graduated pay addition. Salary scales are somewhat lower for women and for posts in the provinces. Prospects of promotion.

Further particulars and application forms from Secretary, Civil Service Commission, Scientific Branch, Trinidad House, Old Burlington Street, London, W.1, quoting No. S4124/52. Completed application forms must be returned by 27 March, 1952.

Assistant Manager required for the Technical Department of a well-known Company. Applicants should be between 28 and 35 years of age, and have a good science degree, preferably in physics, with about five years' industrial or engineering experience; also the necessary personality to permit close working with customers in the engineering and building fields at home and abroad. Duties include the operation of a research and development laboratory situated north of Leeds. Pensionable position; salary in keeping with qualifications. Apply in first instance to Box No. A.V. 21, The Institute of Physics, 47 Belgrave Square, London, S.W.1.

Crompton Parkinson Limited have vacancies for the following:—

1. A **Graduate Physicist** or **Electrical Engineer** with good honours degree to work in Lamp Development Laboratory, Guiseley, on general lamp problems.

2. A **Science Graduate** with a leaning towards practical problems to work on technical control in Lamp Works (Filament and Discharge) at Doncaster.

Applicants with or without experience will be considered. Good prospects for men wishing to make a career in industry. Send full particulars of training and practical experience, if any, to GLG/A, Crompton Parkinson Ltd., Guiseley, Nr. Leeds, Yorkshire.

Monmouthshire Education Committee. **Technical College of Monmouthshire**, Crumlin. Required to commence duties at the beginning of Summer Term, or as soon as possible afterwards, **Assistant** to teach physics with some mathematics.

Candidates must hold good honours degree in physics, or its equivalent, plus industrial, research and/or teaching experience. A share of advanced work will be given to suitably qualified candidate, and facilities for research provided.

Salary in accordance with Grade A scale for Assistants. £375 × £18–£630. Forms of application, etc., obtainable from the Director of Education, must be returned within 14 days after the appearance of this advertisement.

An **honours Graduate** in physics is required in September 1952 by the Department of Science, **City of Gloucester Technical College**, to teach physics up to G.C. of Education (advanced and scholarship) standard, together with some mathematics to advanced standard. Opportunity for work with degree students would be given to a suitable candidate.

Salary will be as laid down for Assistant Lecturer, Grade "B," under the Burnham technical award, viz. £450 × £25–£750 together with appropriate increments for degree, training and industrial experience. Application forms may be obtained from the Principal. Gloucester Technical College, Brunswick Road, Gloucester, to whom they should be returned within 14 days of the appearance of this advertisement.

Assistant Technical Secretary required in London by the Metallurgy Division of the **British Iron and Steel Research Association** to administer technical committees dealing with Metal Physics and the development of techniques for application to the iron and steel industry. Facilities for personal research available. A University degree or equivalent qualification in physics or metallurgy and administrative ability essential. Research and industrial experience in the application of physical methods an advantage. Salary £450–750 per annum according to age, qualifications and experience. Written application only, quoting "Metallurgy Division" and giving full curriculum vitae, to the Personnel Officer, B.I.S.R.A., 11 Park Lane, London, W.1.

Physicist. A young qualified physicist, interested in electronics, is required to work on problems concerned with the analytical application of the spectrograph and with the development of measuring, recording and controlling devices. Salary £500 per annum and upwards, according to age, qualifications and experience. Applications should be addressed to the Director of Research, Research Laboratories of the **British Aluminium Co. Ltd.**, Chalfont Park, Gerrards Cross, Bucks.

Applications are invited for a post in the **Scientific Officer** class at the **Atomic Energy Research Establishment**, Harwell, Berks. The successful candidate would be required to work on term analysis of complex spectra and to assist in work on isotope shifts and hyperfine structure. He would also be required to supervise a small staff engaged in research and development spectrochemical analysis. Candidates should have a 1st or 2nd class honours degree in physics or chemistry or equivalent qualification. They must have at least 3 years' post-graduate experience in a research organization. Salary will be assessed according to age, qualifications and experience within the following ranges: Principal Scientific Officer (minimum age 31)—£960–£1,295, Senior Scientific Officer (minimum age 26)—£720–£910. Rates for women somewhat lower. Post carries benefits under F.S.S.U. Application forms obtainable from Ministry of Labour and National Service, Technical and Scientific Register (K), Almack House, 26 King Street, London, S.W.1, quoting F89/52/A. Closing date 24 April, 1952.

MEMBER'S ADVERTISEMENT

For sale. 1 Fourier strip calculating box and strips—sines and cosines—positive F valves only. Also 250 lantern slides of crystal structures in 3 cases, one a slide carrier. Assorted cardboard models of crystal forms and minerals, and wire bravais lattices. £10 0 0. Box No. M/1, The Institute of Physics, 47 Belgrave Square, London, S.W.1.

DIARY OF INSTITUTE MEETINGS

Date	*Place*	*Speaker*	*Title*	*Time*	*Branch or Group*
Mar. 11	**Glasgow** The University	**Dr. B. W. Robinson**	Fundamental standards	7.00 p.m.	Scottish
Mar. 12	**Edinburgh** The University	**Dr. B. W. Robinson**	Fundamental standards	7.00 p.m.	Scottish
Mar. 18	**London** The Institute's House	**Dr. E. Billig**	The physics of transistors	5.30 p.m.	Electronics
Mar. 19	**London** The Institute's House	**Dr. W. R. Harper, F.Inst.P.**	The Volta/Helmholtz hypothesis of frictional electricity	5.30 p.m.	London and Home Counties
Mar. 20	**Birmingham** The Midland Hotel	**Dr. L. R. G. Treloar, F.Inst.P.**	Rubbers and fibres	6.30 p.m.	Midland
Mar. 21	**Manchester** The University	**Dr. B. Bleaney**	Spectroscopy at centimetre wavelengths	7.00 p.m.	Manchester
Mar. 21	**London** The Institute's House		Symposium—What is the use of standardization?		Industrial Radiology
Apr. 3 Apr. 4	**Edinburgh**		Conference		X-ray Analysis
Apr. 17 Apr. 18 Apr. 19	**London** The Institute's House	Conference on school and university examinations in physics (numbers limited).			Education

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